C H A P T E R 1

Getting Started with Configuration

This chapter discusses initial device configuration, logging into and navigating the Virtual Origin System Manager (VOSM), and a typical VDS-OS configuration workflow. This chapter presents the following major topics:

- Initial Device Configuration, page 1-1
- Logging In To the VOSM, page 1-1
- Activating and Synchronizing the Devices, page 1-3
- Navigating the VOSM, page 1-7
- Configuring Primary and Standby VOSMs, page 1-11
- Typical Configuration Workflow, page 1-13

Initial Device Configuration

You must initially configure the Cisco hardware models that run the VDS-OS software before they can participate in the VDS-OS network. The Cisco hardware model that runs the VOSM must be initialized first so that the hardware models running the Service Engine (SE) and Service Router (SR) can register with it. For more information about initially configuring the hardware models, see the *Release Notes for the Cisco Media Origination Suite Release 2.0*. See the "Related Publications" section on page 4.

After you have initially configured your hardware, you must activate the SEs and SRs and configure the internal clocks by using the VOSM. See the "Activating and Synchronizing the Devices" section on page 1-3 for more information.

Logging In To the VOSM

To log in to the VOSM, do the following:

Step 1   Using your web browser, enter the IP address of your VOSM and port 8443.

✎ **Note**   VDS-OS supports Internet Explorer version 6 or higher, and Mozilla Firefox version 3.6 or higher.

For example, if the IP address of your VOSM is 192.168.0.236, enter:

https://192.168.0.236:8443

The Security Alert message is displayed.

Note   If you are using Mozilla Firefox version 3.6 or higher as your web browser, you need to add the VOSM IP address to the exception list. After entering the VOSM IP address with port 8443, Firefox displays a Secure Connection Failed message with a link stating "Or you can add an exception." Click this link, then click **Add Exception**. The Add Security Exception dialog box is displayed. Click **Get Certificate**. and then click **Confirm Security Exception**. The VOSM IP address has been added to the exception list and you no longer get the Secure Connection Failed message.

Sometimes the VOSM is not initially accessible from a web browser. If this occurs you must disable and re-enable the Centralized Management System (CMS). log in to the CLI for the VOSM, and enter the global configuration command **no cms enable** followed by **cms enable**.

Step 2   Click **Yes** to accept the security certificate. The Login page is displayed (Figure 1-1).

Figure 1-1   *VOSM Login Page*

Step 3   Enter the username and password and click **Login**. The VOSM home page is displayed.

The built-in username is **admin** and the initial password is **default**.

Note   We strongly recommend that you change the built-in admin password as soon as possible. To do so, log in to the CLI of the VOSM device, and use the **username** *admin* **password** *password* global configuration command.

Note   If the default username and password have been changed by another VOSM administrator, you need to get the new username and password.

Activating and Synchronizing the Devices

The VDS-OS administrator approves a device by making it active. This security feature prevents unauthorized devices from joining the VDS-OS.

⚠️

Caution   All devices must be synchronized with each other for the VDS-OS to function properly.

Synchronization ensures accurate timestamps in all the logs and accuracy in caching decisions determined by If Modified Since (IMS) lookups. Using Network Time Protocol (NTP) to synchronize the devices in the VDS-OS is the best practice.

Note   If the network is not configured with NTP, then every device in the VDS-OS must be configured with exactly the same time and time zone. We recommend that you use an NTP server for network synchronization.

Activating and Setting NTP for Each Device

Tip   To navigate within the VOSM, click one of the tabs (for example, Devices) and then one of the tab options (for example Locations). Navigational directions in procedures are written in the following way: **Devices > Devices > Assignments > Device Groups**

Note   From the Devices table, you can activate all inactive devices by clicking the **Activate All Inactive SEs** icon. See the "Activating All Inactive Service Engines" section on page 1-5.

To activate and synchronize a Service Engine (SE) or Service Router (SR), do the following:

Step 1   From the VOSM home page, choose **Devices > Devices**. The Devices table is displayed (Figure 1-2) listing all of the registered SEs and SRs.

Figure 1-2   *Devices Table Page–Edit Device*

Step 2   Click the **Edit** icon next to the device name. The Devices home page is displayed.

✎

Note   If the device you want to activate is not listed in the Devices Table, restart the CMS for that device by telnetting to it and entering **no cms enable** followed by **cms enable** in global configuration mode.

Step 3   Click **Activate** in the Devices home page. The Location dialog box is displayed (Figure 1-3).

Figure 1-3   *Devices Home Page—Location Dialog Box*

Step 4   Create or choose a location. To activate an SE, you need to assign it to a location.

Because the standby VOSM is global to the VDS-OS network, it does not need to be assigned to a location.

You have the following options in creating or choosing a location:

   a.   If you have already created locations, you can choose a location from the **Location** drop-down list.

      b. To create a default location, which can be edited later, check the **Create a New location** check box. A default location is created with the following name: *<SE-name>-location*. From the **Parent of the New Location** drop-down list, choose a parent for this location.

      For information about creating locations, see the "Configuring Locations" section on page 1-1.

Step 5   Click **Apply and Activate**.

      The Status of the device shows "pending" until the device is fully activated. This may take a few minutes.

Step 6   To display the top-level Table of Contents, click the **Show All** button above the Contents pane.

Step 7   From the left-panel menu, select **General Settings > Network > NTP**. The NTP Settings page is displayed.

Step 8   Check the **Enable** check box and enter the IP address or hostname of each NTP server. Use a space to separate each server.

Step 9   Click **Submit** to save your settings.

      The activation and NTP server settings must be completed for each SE, SR, and standby VOSM.

Tip   For a quick way to get to other SEs, click the **Display All Devices** icon located to the left of the Expand All button. This icon toggles between the Display All Devices and Menu icons.

For more detailed information about configuring locations, activating devices, and configuring NTP servers, see the following sections:

- Configuring Locations, page 1-1
- Activating a Service Engine, page 1-9
- Configuring NTP, page 1-35

Activating All Inactive Service Engines

To activate all inactive SEs, do the following:

Step 1   From the VOSM home page, choose **Device > Devices** and click the **Activate All Inactive SEs** icon. See Figure 1-4.

Figure 1-4   *Devices Table Page—Activate All Inactive Service Engines*

The Location Choice page is displayed (Figure 1-5).

Figure 1-5   Location Choice Page

Step 2   In the Location Choice page, click either **Select an Existing Location for All Inactive SEs** or **Create a New Location for Each Inactive SE**.

If you are creating a new location, you can select a parent location, or leave the default of "none."

Step 3   Click **Submit** to save the settings.

The Status in the Devices Table for all the inactive SEs shows "pending" until the devices have been fully activated.

✎

Note   All devices activated in this way need to have the NTP settings configured. See Step 6 through Step 9 in the "Activating and Setting NTP for Each Device" section on page 1-3.

Navigating the VOSM

Figure 1-6 shows the different elements of the VOSM.

Figure 1-6   VOSM User Interface
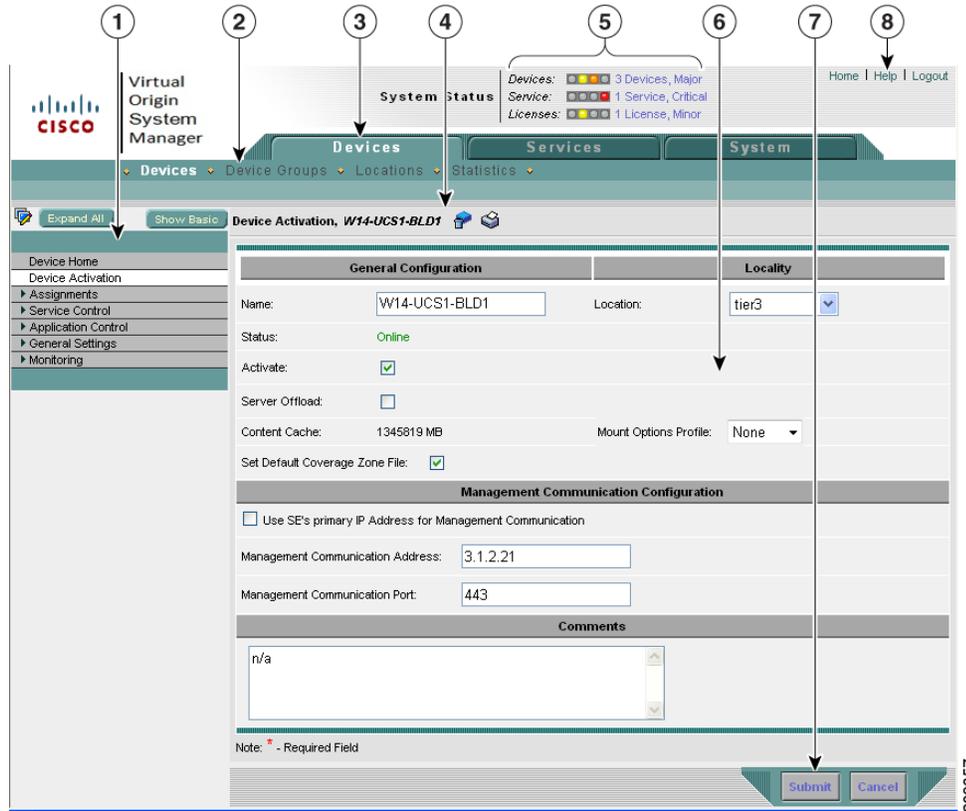
1	Left panel menu	**5**	System Status bar
2	Tab options	**6**	Page
3	Tabs	**7**	Submit and Cancel buttons
4	Task bar	**8**	Tools (Home, Help, and Logout)

The System Status bar, tabs, tab options, and tools are accessible from any page in the VOSM. The left panel menu changes depending on which tab and tab option you choose.

Devices, Services, and Other Tables

The Devices Table page shows all the devices registered in the VOSM. Figure 1-7 shows an example of the Devices Table page. A table is displayed for each of the following tab options:

- Devices (from Devices tab)

- Device Groups (from Devices tab)

- Locations (from Devices tab)

- Virtual Origin Services (from Services tab)
- Live Video (from Services tab)

Figure 1-7   Devices Table Page

You can sort the information in the table by clicking on any column title. The table can be sorted in ascending or descending order for each column. The task bar options provide other table manipulations, including filtering, refreshing the table, viewing all items, and printing.

The bottom of the table lists the page number and the total number of pages, as well as how many items are showing out of the total number of items.

The table defaults to listing ten rows. You can change the number of rows shown by clicking the Rows drop-down list.

To get more information on an item or to configure an item, click the **Edit** icon to the left of the item name. To create a new item, click the **Create New** icon in the task bar.

Devices Home Page

The Devices home page provides information about the device, as well as the ability to perform the following tasks:

- Activate the device
- Update the device software
- Assign the device to baseline groups

From the Devices home page you can access the origin services and device groups the device is assigned to, by clicking the appropriate link. All origin services, or device groups (depending on which link you clicked), configured in your VDS-OS are displayed. Through this page, you can assign the device to additional origin services or device groups by clicking the icon next to the applicable origin services or device groups and submitting your selection.

The Devices home page offers detailed bandwidth and bytes-served graphs with detailed reports for each.

The left panel menu has two toggle buttons: Show Basic/Show All and Expand All/Collapse All.

- **Show All**   Shows all the menu items in the menu.

- **Show Basic**   Shows only the Device home menu item.

- **Expand All**   Shows every menu and submenu.

- **Collapse All**   Shows only the top-level menu items.

Task Bar

The task bar displays information about the page you are on and provides associated tasks. All task bar icons, as well as other icons, have labels that are displayed when you roll over the icon with your mouse pointer.

Any icon used in a procedure is referenced by the rollover label; for example, **Create New** is the rollover label for the following icon:

Table 1-1 describes the icons available in the VOSM.

Table 1-1   VOSM Icons

Icon	Function
	Activates all inactive Service Engines.
	Displays devices.
	Displays left-panel menu.
	Deactivates the device.
	Updates application statistics.
	Forces refresh of replication information or process content changes.
	Goes back to Replication Status page.
	Forces full database update.
	Forces settings on SEs in group.
	Forces the group settings.

Table 1-1   VOSM Icons (continued)

Icon	Function
	Views read-only items.
	Creates a new item.
	Edits an item.
	Deletes an item.
	Adds a content item for acquisition.
	Deletes a selected item.
	Manages between host and proxy servers for content acquisition.
	Saves to disk.
	Views complete URL (+) or view (-) partial URL that is used to acquire content.
	Exports a table to a comma-separated value (CSV) file.
	Creates a filtered table. Filter the table based on the field values.
	Displays a graph.
	Applies the default settings to the device.
	Overrides the group settings on the device.
	Views all table entries. Click this icon to view all entries after you have created a filtered table.
	Refreshes the table.
	Reboots the device.
	Prints the current window.
	Assigns all items to the entity.

Table 1-1   *VOSM Icons (continued)*

Icon	Function
	Removes all items from the entity.
	Indicates that the current transaction was successfully completed.
	Indicates that user input is invalid and that the transaction did not finish.

Configuring Primary and Standby VOSMs

The VOSM can operate in two different roles: primary and standby. The primary role is the default. You can have only one primary VOSM active in your network; however, you can have any number of VOSMs operating in a standby role to provide redundancy and failover capacity. You must configure the primary VOSM first.

Note   The primary and standby VOSMs must be running the same version of software. You must upgrade your standby VOSM first, and then upgrade your primary VOSM.

If the primary VOSM is down, the devices (SEs and SRs) cannot send regular reports and events to it, so the data is sent to the standby VOSM. After the primary VOSM is online, the database on the standby VOSM is synchronized with the database on the primary VOSM.

To configure a standby VOSM, do the following using the CLI:

Step 1   Follow the instructions for configuring a VOSM using the setup utility, except do not enter the IP address of the VOSM. The instructions can be found in the *Release Notes for the Cisco Media Origination Suite Release 2*.0.

Step 2   Configure the standby VOSM.

```
SE(config)# VOSM role standby
```

Step 3   Identify the IP address of the primary VOSM.

```
SE(config)# VOSM ip 10.1.1.90
```

Step 4   Start the Centralized Management System (CMS).

```
SE(config)# cms enable
```

Step 5   Save the configuration.

```
SE# copy running-config startup-config
```

Step 6   Activate the standby VOSM by using the web interface of the primary VOSM.

The primary VOSM notifies all registered devices that a standby VOSM exists and sends each device the information it needs to contact the standby should the primary fail or become inactive.

Note   You cannot log in to the web interface of the standby VOSM. Its function is to maintain an up-to-date copy of the primary's database.

Changing a Standby to a Primary VOSM

Note   If your primary VOSM is still operating, you must change its role to standby by executing the **VOSM role standby** command before following these steps. You can only have one primary VOSM operating at any given time.

To change the standby VOSM to become the primary, do the following:

Step 1   If your primary VOSM has failed, enter the following command:

```
SE(config)# VOSM role primary
```

Step 2   Save the configuration.

```
SE# copy running-config startup-config
```

Step 3   Restore the old primary VOSM, if possible.

Step 4   When the old primary VOSM is restored, change its role to standby.

```
VOSM role standby
```

Step 5   Reconnect the old primary VOSM (now standby VOSM) into the VDS-OS network.

Step 6   Wait at least one polling interval to allow the data from the primary VOSM to be copied to the standby VOSM.

Note   During this period, do not make any configuration changes.

Step 7   When the new primary VOSM and the new standby VOSM have synchronized, you can change the roles of the VOSMs back to their original roles.

Note   There can only be one primary VOSM in a VDS-OS at one time. If there are two primary VOSMs, both VOSMs are halted.

To change the roles back, do the following:

a.   Change the role of the primary VOSM to standby.

```
VOSM role standby
```

b.   Change the role of the standby VOSM to primary.

```
VOSM role primary
```

> **Note** If you have recently made configuration changes to the primary VOSM, wait at least the polling interval before changing roles to ensure that the standby has a record of the most recent configuration changes.

Recovering from Two Primary VOSMs

If you did not change the primary VOSM to standby before you changed the standby VOSM to primary, you will have two primary VOSMs in your VDS-OS and both will be halted. To restore both VOSMs, do the following:

Step 1 Make sure the VOSM that is to be designated as the standby is in fact the standby by entering the **VOSM role standby** command.

Step 2 Initiate the CMS on the standby VOSM by entering the **cms enable** command.

Step 3 Make sure the VOSM that is to be designated as the primary is in fact the primary by entering the **VOSM role primary** command.

Step 4 Initiate the CMS on the primary VOSM by entering the **cms enable** command.

Step 5 Make sure the standby VOSM is activated by using the web interface of the primary VOSM.

Typical Configuration Workflow

Once you have completed activating and configuring the NTP servers for all the devices in the VOSM, you are ready to configure the VDS-OS for content playout. For information about activating and configuring the NTP servers for a device, see the "Activating and Setting NTP for Each Device" section on page 1-3.

Table 1-2 lists the basic tasks for configuring the VDS-OS for content playout, with references to the associated sections in each chapter.

Table 1-2   Configuration Workflow

Task	Description	Where to Find More Information
Change admin password	Change the administrator password on each device, including the VOSM, and change the administrator password for the system	Log in to the CLI for the device and use the **username** *admin* **password** *password* global configuration command. The password strength must be a combination of alphabetic characters, at least one number, at least one special character, and at least one uppercase character. To change the password for the VOSM GUI and CLI, go to "Creating, Editing, and Deleting Users," page 1-2
Create Device Groups	Group like devices to speed up configuration	"Configuring Device Groups," page 1-3
Define Network Storage Shares	Each origin service and live channel must have at least one Network Storage Share assigned.	Defining Network Storage Shares, page 1-13
Create optional mount profiles	If the default mount profile is not sufficient, create new mount profiles.	Creating Mount Option Profiles for Network Storage Shares, page 1-14
Configure RCP	Configure Remote Copy Protocol (RCP) to listen for requests on TCP port 514	"Enabling RCP," page 1-35
Configure FTP	Enable FTP services to listen for connection requests	"Enabling FTP Services," page 1-34
Configure Web Engine	For all SEs participating in delivering content	"Configuring Web Engine HTTP Cache Freshness," page 1-18
Create Coverage Zone File	Map SEs to client service areas by IP address or geographic location	Appendix 1, "Creating Coverage Zone Files"
Import or Upload Coverage Zone File	Apply Coverage Zone mappings to VDS-OS	"Coverage Zone File Registration," page 1-10
Configure Global Routing Method	Set the Coverage Zone file	"Configuring Global Routing," page 1-12
Configure Routing Method	Configure the routing method used by SRs to be DNS-based routing	"Routing Redirection," page 1-35
Create Origin Service Definitions	Create origin services for both prefetched or cached content and live programs	"Configuring Origin Services," page 1-1
Create Live Channels	Create live channels and schedules	"Creating Live Channels," page 1-7